REMARKS

The Examiner is thanked for the performance of a thorough search. By this amendment, the specification and claims 9, 29-32 are amended. Claims 22 and 27 have been previously canceled. Hence, claims 1-21, 23-26, and 28-32 are pending in this application. The amendments to the claims do not add any new matter to this application. Furthermore, the amendments to the claims were made to improve the readability and clarity of the claims and not for any reason related to patentability. All issues raised in the Office Action mailed January 8, 2008 are addressed hereinafter.

I. ISSUES NOT RELATING TO PRIOR ART

A. CLAIMS OBJECTIONS

The Office Action states that claim 9 was objected to because of informalities.

Applicants believe that the objections are fully addressed by amended claim 9.

B. CLAIMS -- U.S.C. § 101

The Office Action states that claims 9, 18, 23, 28, 30, and 32 were objected to under 35 U.S.C. § 101 due to informalities.

Applicants believe any informalities are fully addressed by amended paragraphs [0070], [0071], and [0074] in the specification.

Reconsideration and withdrawal of the objections are respectfully requested.

C. CLAIMS 29-32 -- U.S.C. § 112, FIRST PARAGRAPH

The Office Action rejected claims 29-32 under 35 U.S.C. § 112, first paragraph.

Applicants believe that the rejection is fully addressed by amended claims 29-32.

Reconsideration and withdrawal of the rejection is respectfully requested.

D. CLAIMS 29-32 -- U.S.C. § 112, SECOND PARAGRAPH

The Office Action rejected claims 29-32 under 35 U.S.C. § 112, second paragraph. Applicants believe that the rejection is fully addressed by amended claims 29-32. Reconsideration and withdrawal of the rejection is respectfully requested.

II. ISSUES RELATING TO PRIOR ART

A. CLAIMS 1-21, 23-26, AND 28 -- 35 U.S.C. § 103(a): AKAHANE, YAMAUCHI

Claims 1-21, 23-26, and 28 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Akahane Pub. No. US 2003/0053414 A1 (hereinafter "Akahane"), in view of Yamauchi Pub. No. US 2002/0037010 A1 (hereinafter "Yamauchi"). (Office Action, page 4) The rejection is respectfully traversed.

CLAIM 1

Claim 1 recites:

> A method of forwarding a **tunneled packet having a header identifying a tunnel end point and a payload**, in a data communications network, comprising the steps performed at a forwarding node of:
>
> **recognizing a tunneled packet comprising an address directly identifying a neighbor node to the forwarding node as tunnel end point,**
>
> removing the header and
>
> forwarding the payload to the neighbor node.

As discussed in applicants' Reply to the previous Office Action, claim 1 recites one or more features that are not taught or suggested by Akahane, and Yamauchi does not cure the deficiencies of Akahane. For example, Akahane does not describe "recognizing a tunneled packet **comprising an address** directly identifying a neighbor node to the forwarding node as tunnel end point."

Akahane describes a system where a tunneled packet comprises **link labels** associated with a backup route, not actual addresses of the nodes associated with the backup route. (Akahane, paragraph [12])

In particular, Akahane's FIG. 3 shows how packets are transferred in the case when a failure occurs in the line 1020-1, connecting the Core Router CR1 with CR2. To bypass the failed line, Akahane establishes a backup route, called Label Switched Path 3 (LSP3) leading via CR3. (Akahane, paragraph [14]) Then, Akahane sends a tunneled packet via the backup route LSP3, wherein the tunneled packet comprises link labels spanning the LSP3. For example, a link label spanning the routers CR1 and CR3 is called L31, and a link label spanning the routers CR3 and CR2 is called L32. (Akahane, paragraph [16])

Upon receiving a packet, the router CR1 adds output link labels (including L31) to the packet's header, and transmits the packet according to the link label L31. CR3 swaps the L31 label for the output label L32 and transmits the packet according to the link label L32. CR2 receives the packet, removes the label L32, adds the label of the final link and sends the packet toward its destination. (Akahane, paragraph [17]) However, none of these link labels actually **comprises an address of** any of the nodes as claimed. Therefore, Akahane does not have a tunneled packet **comprising an address directly identifying** a neighbor node to the forwarding node as claimed.

Further, Akahane does not describe "**recognizing a tunneled packet comprising an address directly identifying a neighbor node to the forwarding node as tunnel end point"** as claimed.

In Akahane, CR2 is the terminal of the backup LSP, and recognizes itself to be a terminal of the backup LSP3, whereas CR3 is the last router before the terminal of the backup LSP3. (Akahane, paragraph [19]) However, even if CR2 corresponds to the tunnel end point recited in claim 1, and CR3 corresponds to the last forwarding node recited in claim 1, CR3 does not recognize the address of CR2 because the header of the packet arriving at CR3 contains only link

labels (including the link label L32), not CR3's actual address. Therefore, CR3 does not "**recognize a tunneled packet comprising an address directly identifying**" CR2 as claimed.

Furthermore, as also pointed in the previous Reply, Akahane does not describe a "**tunneled packet having a header identifying a tunnel end point and a payload.**" As described above, a tunneled packet in Akahane comprises a sequence of link labels and the payload. In fact, upon receiving a tunneled packet at a backup core router, the router parses the header to extract only one or two link labels, and treats the remaining labels as a payload along with the actual payload of the original packet. Thus, regardless of whether Akahane's header of the tunneled packet comprises one link label or a sequence of labels, Akahane's header does comprise a label or labels, not an **identifier of a tunnel end point.** Therefore, Akahane does not describe a "**tunneled packet having a header identifying a tunnel end point and a payload.**"

The Office Action states that Akahane does not disclose that CR2 is the tunnel end point, but Yamauchi discloses that a router immediately preceding a PE router executes penultimate hop popping for removing (decapsulating) the first stage MPLS label (Yamauchi, paragraph 22). (Office Action, page 5) Applicants disagree.

Claim 1 recites one or more features that are not taught or suggested by Yamauchi and also not found in Akahane. For example, Yamauchi does not describe "recognizing a tunneled packet **comprising an address** directly identifying a neighbor node to the forwarding node as tunnel end point."

Yamauchi describes a conventional network for providing MPLS-VPN services using MPLS for network layer routing. (Yamauchi, paragraphs [21]-[22]) In Yamauchi, when a packet, sent from one VPN network, enters the MPLS-VPN service network, the Provider Edge (PE) router determines the packet's destination in accordance with a routing table stored in the Virtual Routers (VR). (Yamauchi, paragraph [19]) Then, PE router encapsulates the packet in a format containing an IP header, a second-stage MPLS label, and a first-stage MPLS label.

Then, PE router stacks the appropriate labels, and transfers the packet from the PE to the core router. (Yamauchi, paragraph [20])

The core router executes label switching, and transfers the resulting packet to the next core router along the tunnel path. Eventually, the core router located at the outlet of an MPLS-VPN service network, executes a penultimate hop popping for decapsulating an MPLS label. (Yamauchi, paragraph [22])

However, just as with Akahane's packet, Yamauchi's tunneled packet does not **comprise an address** of a node**.** As described above, Yamauchi's tunneled packet contains MPLS labels, not nodes' addresses. Further, because Yamauchi's tunneled packed does not comprise nodes' addresses, Yamauchi cannot "**recognize a tunneled packet comprising an address directly identifying a neighbor node to the forwarding node as tunnel end point**."

Further, in Yamauchi, a penultimate hop popping (PHP) involves removing the outermost label of an MPLS tagged packet by a label switched router before the packet is passed to an adjacent Label Edge Router. PHP pertains just to removing link labels, not addresses.

Finally, because Yamauchi's link labels (just as Akahane's labels) do not identify addresses of nodes on the LSP, Yamauchi's "**tunneled packet"** does not have "**a header identifying a tunnel end point and a payload."**

Neither Akahane, nor Yamauchi, provides all the above discussed features of claim 1. Akahane and Yamauchi, individually and in combination, do not render claim 1 unpatentable.

Reconsideration and withdrawal of the rejection is respectfully requested.

CLAIMS 9, 10, AND 18

Claims 9, 10, and 18 recite features similar to those in claim 1. Reconsideration and withdrawal of the rejection is respectfully requested for the same reasons described for claim 1.

B. CLAIMS 29-32 —35 U.S.C. § 102(e): CHU

Claims 29-32 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by Chu Pub. No. US 2004/0151181 A1 (hereinafter "Chu").

The Office Action states that Claims 29-32 are allegedly anticipated in Chu's Figs. 2A, 2B, and 2C, and paragraphs 37, and 38. (Office Action, page 9) The rejection is respectfully traversed.

CLAIM 29

Claim 29 recites:

> A method of constructing a backup route from a first node in a data communications network having as components nodes and links, around a component, comprising the steps of:
>
> computing a spanning tree, rooted at the first node, of available nodes which excludes nodes reachable by traversing the component,
>
> **assigning to an available node a negative of a cost of reaching the first node from the available node** and
>
> **re-computing the spanning tree taking into account the negative of a cost of reaching the first node from the available node.**

Claim 29 recites one or more features that are not taught or suggested by Chu. For example, Chu does not describe "**assigning** to an available node **a negative of a cost of reaching the first node from the available node,**" because Chu only uses positive values to compute paths' costs.

In Chu, once the root Bridging Module (BM) is selected, the other BMs attempt to connects to the root BM, either directly or through other BMs. (Chu, paragraph [33]) The criterion for connecting is to use the least accumulated path cost. The cost of the path to the root through a BM is encoded in the Root Path Cost parameter. The value is obtained by adding the cost of the individual segments of the path. (Chu, paragraph 37) All the costs in Chu are represented by positive values. Therefore, Chu does not "**assign** to an available node **a negative of a cost of reaching the first node from the available node.**"

Further, **it is not inherent** that an available node has a negative of the cost from that node back to the root node when using the reverse SPF routed at that root node. For example, in an asymmetric network, the cost of traversing a link from A to B may be different than the negative of the cost of traversing a link from B to A.

In addition, Chu does not describe "**re-computing the spanning tree taking into account the negative of a cost of reaching the first node from the available node.**" As explained above, Chu only adds up the cost of reaching the available node from the root node, but never takes into consideration the negative of the cost of reaching the root node from the available node.

Therefore, Chu does not describe at least one feature recited in claim 29, and cannot support an anticipation rejection.

Reconsideration and withdrawal of the rejection is respectfully requested.

DEPENDENT CLAIMS

The claims that are not discussed above depend directly or indirectly on the claims that have been discussed. Therefore, those claims are patentable for the reasons given above. In addition, each of the dependent claims separately introduces features that independently render the claim patentable. However, due to the fundamental differences already identified, and to expedite positive resolution of the examination, separate arguments are not provided for each of the dependent claims at this time.

III. CONCLUSIONS

It is respectfully submitted that all of the pending claims are in condition for allowance and the issuance of a notice of allowance is respectfully requested.

If any applicable fee is missing or insufficient, the Commissioner is authorized throughout the pendency of this application to charge any applicable fee to our Deposit Account No. 50-1302.

The Examiner is invited to contact the undersigned by telephone if the Examiner believes that such contact would be helpful in furthering the prosecution of this application.

Respectfully submitted,
HICKMAN PALERMO TRUONG & BECKER LLP

Date: March 11, 2008

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